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THE GARDEN OF CYRUS ❧ OR THE QUINCUNCIAL LOZENGE, OR NETWORK PLANTATIONS OF THE ANCIENTS ARTIFICIALLY, NATURALLY, MYSTICALLY CONSIDER'D

BY SIR THOMAS BROWNE, PHYSICIAN, OF NORWICH

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TO MY WORTHY AND HONOURED FRIEND NICHOLAS BACON, OF GILLINGHAM, ESQUIRE

HAD I NOT OBSERVED THAT PURBLIND MEN HAVE discoursed well of sight, & some without issue excellently of generation, I, that was never master of any considerable garden, had not attempted this subject. But the earth is the garden of nature, & each fruitfull countrey a paradise. Dioscorides made most of his observations in his march about with Antonius; and Theophrastus raised his generalities chiefly from the field. ❧ BESIDES, we write no herball, nor can this volume deceive you, who have handled the massiest thereof; who know that three folios are yet too little, and how new herballs fly from America upon us: from persevering enquirers, and old in those singularities, we expect such descriptions; wherein England is now so exact, that it yields not to other countreys. ❧ WE pretend not to multiply vegetable divisions by quincuncial & reticulate plants, or erect a new phytology. The field of knowledge hath been so traced it is hard to spring anything new. Of old things we write something new: if truth may receive addition, or envy will have anything new; since the ancients knew the late anatomicall discoveries, and Hippocrates the circulation. ❧ YOU have been so long out of trite learning, that 'tis hard to find a subject proper for you; and if you have met with a sheet upon this, we have missed our intention. In this multiplicity of writing, bye and barren themes are best fitted for invention; subjects so often discoursed confine the imagination, and fix our conceptions unto the notions of fore-writers. Beside, such discourses allow excursions, & venially admit of collateral truths, though at some distance from the principals. Wherein if we sometimes take wide liberty, we are not single, but erre by great example. ❧ HE that will illustrate the excellency of this order, may easily fail upon so spruce a subject, wherein we have not affrighted the common reader with any other diagramms than of itself, & have industriously declined illustrations from rare & unknown plants. ❧ YOUR discerning judgement, so well acquainted with that study, will expect herein no mathematicall truths, as well understanding

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how few generalities & *U finita's* there are in nature. How Scaliger hath found exceptions in most universals of Aristotle & Theophrastus. Now botanicall maximes must have fair allowance, & are tolerably current, if not intolerably over-balanced by exceptions. ❧ YOU have wisely ordered your vegetable delights beyond the reach of exception. The Turks, who pass their days in gardens here, will have gardens also hereafter, and delighting in flowers on earth, must have lilies and roses in Heaven. In garden-delights it is not easie to hold a mediocrity; that insinuating pleasure is seldome without some extremity. The ancients venially delighted in flourishing gardens; many were florists that knew not the true use of a flower; & in Pliny's days none had directly treated of that subject. Some commendably affected plantations of venomous vegetables, some confined their delights unto single plants, & Cato seemed to dote upon cabbage; while the ingenuous delight of tulipists stands saluted with hard language even by their own professors. ❧ THAT in this garden-discourse we range into extraneous things and many parts of art and nature, we follow herein the example of old & new plantations, wherein noble spirits contented not themselves with trees, but by the attendance of aviaries, fish-ponds, and all variety of animals, they made their gardens the epitome of the earth and some resemblance of the secular shows of old. ❧ THAT we conjoyn these parts of different subjects, or that this should succeed the other, your judgement will admit without impute of incongruity; since the delightfull world comes after death, and Paradise succeeds the grave; since the verdant state of things is the symbol of the resurrection, and, to flourish in the state of glory, we must first be sown in corruption —beside the ancient practice of noble persons, to conclude in garden-graves, and urns themselves of old to be wrapt up in flowers & garlands. ❧ *NULLUM sine venia placuisse eloquium* is more sensibly understood by writers than by readers; nor well apprehended by either, till works have hanged out like Appelles his pictures; wherein even common eyes will find something for emendation. ❧ TO wish all readers of your abilities were unreasonably to multiply the number of scholars beyond the temper of these times. But unto this ill-judging age we charitably desire a portion of your equity, judgement, candour, and ingenuity; wherein you are so rich as not to lose by diffusion. And, being a flourishing branch of that noble family unto whom we owe so much observance, you are not new set, but long rooted in such perfection; whereof having had so lasting confirmation in your worthy conversation, constant amity, and expression, & knowing you are a serious student in the highest *arcana* of nature, with much excuse we bring these low delights and poor maniples to your treasure.

Your affectionate Friend and Servant,
THOMAS BROWNE.

NORWICH
May 1*st.*

I.

THAT VULCAN GAVE ARROWS UNTO APOLLO & Diana the fourth day after the nativities, according to Gentile theology, may pass for no blind apprehension of the creation of the Sun & Moon in the work of the fourth day; when the diffused light contracted into the orbs and shooting rays of those luminaries. Plainer descriptions there are from pagan pens of the creatures of the fourth day: while the divine Philosopher unhappily omitteth the noblest part of the third; and Ovid (whom many conceive to have borrowed his description from Moses) coldly deserting the remarkable account of the text in three words describeth this work of the third day, the vegetable creation, and first ornamental scene of nature, the primitive food of animals, and first story of physick, in dietetical conservation. ❦ FOR though physick may plead high, from the medicall act of God in casting so deep a sleep upon our first parent; and chirurgery find its whole art in that one passage concerning the rib of Adam: yet is there no rivality with garden contrivance and herbary. For if Paradise were planted the third day of the creation, as wiser divinity concludeth, the nativity thereof was too early for Horoscopie; gardens were before gardiners, & but some hours after the earth. ❦ OF deeper doubt is its topography and local designation: yet being the primitive garden, & without much controversie seated in the east; it is more than probable the first curiosity & cultivation of plants most flourished in those quarters. And since the ark of Noah first touch'd upon some mountains of Armenia, the planting art arose again in the east, and found its revolution not far from the place of its nativity, about the plains of those regions. And if Zoroaster were either Cham, Chus, or Mizraim, they were early proficients therein, who left (as Pliny delivereth) a work of agriculture. ❦ HOWEVER, the account of the pensil or hanging gardens of Babylon, if made by Semiramis, the third or fourth from Nimrod, is of no slender antiquity; which being not framed upon ordinary level of ground, but raised upon pillars admitting underpassages, we cannot accept as the first Babylonian gardens, but a more eminent progress & advancement in that art than any that went before it; somewhat answering or hinting the old opinion concerning Paradise itself, which many conceptions elevated above the plane of the earth. ❦

NABUCHODONOSOR, whom some will have to be the famous Syrian King of Diodorus, beautifully repaired that city & so magnificently built his hanging gardens, that from succeeding writers he had the honour of the first author. From whence overlooking Babylon and all the region about it, he found no circumscription to the eye of his ambition, till overdelighted with the bravery of this Paradise, in his melancholick metamorphosis he found the folly of that delight, & a proper punishment in the contrary habitation, in wilde plantations and wanderings of the fields. ❧ THE Persian gallants, who destroyed this monarchy, maintained their botanical bravery. Unto whom we owe the very name of Paradise: wherewith we meet not in Scripture before the time of Solomon, & it is conceived originally Persian. The word for that disputed garden expressing in the Hebrew no more than a field enclosed, which from the same root is content to derive a garden and a buckler. ❧ CYRUS the elder, brought up in woods and mountains, when time and power enabled, pursued the dictate of his education, and brought the treasures of the field into rule & circumscription; so nobly beautifying the hanging gardens of Babylon, that he was also thought to be the authour thereof. ❧ AHASUERUS (whom many conceive to have been Artaxerxes Longimanus) in the country and city of flowers, & in an open garden, entertained his princes and people; while Vashti more modestly treated the ladies within the palace thereof. ❧ BUT if (as some opinion) King Ahasuerus were Artaxerxes Mnemon, that found a life and reign answerable unto his great memorie, our magnified Cyrus was his second brother; who gave the occasion of that memorable work, and almost miraculous Retreat of Xenophon. A person of high spirit & honour, naturally a king, though fatally prevented by the harmless chance of post-geniture: not onely a lord of gardens, but a manual planter thereof, disposing his trees, like his armies, in regular ordination. So that while old Laertes hath found a name in Homer for pruning hedges, & clearing away thorns & briars; while King Attalus lives for his poisonous plantations of Aconite, Henbane, Hellebore, & plants hardly admitted within the walls of Paradise; while many of the ancients do poorly live in the single names of vegetables; all stories do look upon Cyrus as the splendid & regular planter. ❧ ACCORDING whereto Xenophon describeth his gallant plantation at Sardis, thus rendred by Strebæus; *Arbores pari intervallo sitas, rectos ordines, & omnia perpulchre in Quincuncem directa.* Which we shall take for granted, as being accordingly rendred by the most elegant of the Latines, and by no made term, but in use before by Varro. That is, the rows and orders so handsomely disposed, or five trees so set together, that a regular angularity and through prospect was left on every side. Owing this name not onely to the quintuple number of trees, but the figure declaring that number, which being doubled at the angle makes up the letter X, that is the emphatical decussation, or fundamental figure. ❧ NOW though in some ancient and modern practice the area or decussated plot might be a perfect square, answerable to a Tuscan pedestal, and the Quinquernio or Cinque-point of a Die, wherein by diagonal lines the intersection was regular, accommodable unto plantations of large-growing trees, and we must not deny ourselves the advantage of this order; yet shall we chiefly insist upon that of Curtius and Porta, in their brief description hereof, wherein the *decussis* is made within in a longilateral square, with opposite angles, acute and obtuse at the intersection, and so upon progression making a *rhombus*, or lozenge figuration, which seemeth very agreeable unto the original figure, answerable whereunto we observe the decussated characters in many consulary coins, and even in those of Constantine and his sons, which pretend their pattern in the sky; the crucigerous ensign carried this figure, not transversely or rectangularly intersected, but in a decussation, after the form of an Andrean or Burgundian cross, which answereth this description. ❧ WHERE by the way we shall decline the old theme, so traced by antiquity, of crosses & crucifixion; whereof some being right, and of one single piece, without transversion or transome, do little advantage our subject. Nor shall we take in the mystical *Tau*, or the Cross of our Blessed Saviour, which, having in some descriptions an *Empedon*, or crossing footstay, made not one single transversion. And, since the learned Lipsius hath made some doubt even of the cross of St. Andrew, since some martyrological histories deliver his death by the general name of a cross, and Hippolytus will have him suffer by the sword; we should have enough to make out the received cross of that martyr. Nor shall we urge the *Labarum* & famous standard of Constantine, or make farther use thereof, than as the first letters in the name of our Saviour Christ, in use among Christians before the days of Constantine, to be observed in sepulchral monuments of martyrs in the reigns of Adrian and Antoninus, and to be found in the antiquities of the Gentiles before the advent of Christ, as in the medal of King Ptolemy, signed with the same characters, and might be the beginning of some word or name which antiquaries have not hit on. ❧ WE will not revive the mysterious crosses of Ægypt, with circles on their heads, in the breast of Serapis and the hands of their genial spirits, not unlike the character of Venus, & looked on by ancient Christians with relation unto Christ. Since, however, they first began, the Ægyptians thereby expressed the process and motion of the spirit of the world, and the diffusion thereof upon the celestial and elemental nature; implied by a circle & right-lined intersection—a secret in their talismans and magical characters among them. Though he that considereth the plain cross upon the head of the owl in the Laterane obelisk, or the cross erected upon a pitcher diffusing streams of water into basins with sprinkling branches in them, and all described upon a two-footed altar, as in the hieroglyphicks of the brazen Table of Bembus, will hardly decline all thought of Christian signality in them. ❧ WE shall not call in the Hebrew *Tenupha*, or ceremony of their oblations, waved by the priest unto the four quarters of the world, after the form of a cross, as in the peace offerings. And if it were clearly made out what is remarkably delivered from the traditions of the rabbins, that as the oil was poured coronally, or circularly, upon the heads of kings, so the high-priest was anointed decussatively, or in the form of an X; though it could not escape a typical thought of Christ from mystical consideratours, yet, being the conceit is Hebrew, we should rather expect its verification from analogy in that language than to confine the same unto the unconcerned letters of Greece, or make it out by the characters of Cadmus or Palamedes. ❧ OF this quincuncial ordination the ancients practised much, discoursed little; & the moderns have nothing enlarged; which he that more nearly considereth, in the form of its square *rhombus* & decussation, with the several commodities, mysteries, parallelisms, and resemblances, both in art and nature, shall easily discern the elegancy of this order. ❧ THAT this was in some ways of practice in divers and distant nations, hints or deliveries there are from no slender antiquity. In the hanging gardens of Babylon, from Abydenus, Eusebius, and others, Curtius describeth this rule of decussation. In the memorable garden of Alcinous, anciently conceived an original fancy from Paradise, mention there is of well-contrived order; for so have Didymus and Eustathius expounded the emphatical word. Diomedes, describing the rural possessions of his father, gives account in the same language of trees orderly planted. And Ulysses, being a boy, was promised by his father forty fig-trees and fifty rows of vines producing all kinds of grapes. ❧ THAT the eastern inhabitants of India made use of such order, even in open plantations, is deducible from Theophrastus, who, describing the trees whereof they made their garments, plainly delivereth that they were planted κατ᾽ ὄρχους and in such order that at a distance men would mistake them for vineyards. The same seems confirmed in Greece from a singular expression in Aristotle concerning the order of vines, delivered by a military term representing the orders of souldiers, which also confirmeth the antiquity of this form yet used in vineal plantations. ❧ THAT the same was used in Latine plantations is plainly confirmed from the commending pen of Varro, Quintillian, and handsome description of Virgil. ❧ THAT the first plantations not long after the floud were disposed after this manner the generality and antiquity of this order observed in vineyards and vine plantations affordeth some conjecture. And since, from judicious enquiry, Saturn, who divided the world between his three sons, who beareth a sickle in his hand, who taught the plantations of vines, the setting, grafting of trees, and the best part of agriculture, is discovered to be Noah—whether this early dispersed husbandry in vineyards had not its original in that patriarch is no such paralogical doubt. ❧ AND, if it were clear that this was used by Noah after the floud, I could easily believe it was in use before it; not willing to fix such ancient inventions to higher original than Noah; nor readily conceiving those aged heroes, whose diet was vegetable, and onely or chiefly consisted in the fruits of the earth, were much deficient in their splendid cultivations, or after the experience of fifteen hundred years left much for future discovery in botanical agriculture; nor fully persuaded that wine was the invention of Noah; that fermented liquours, which often make themselves, so long escaped their luxury or experience; that the first sin of the new world was no sin of the old; that Cain and Abel were the first that offered sacrifice; or because the Scripture is silent, that Adam or Isaac offered none at all.

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WHETHER Abraham, brought up in the first planting countrey, observed not some rule hereof when he planted a grove at Beer-sheba, or whether at least a like ordination were not in the garden of Solomon, probability may contest; answerably unto the wisedom of that eminent botanologer and orderly disposer of all his other works: especially since this was one piece of gallantry wherein he pursued the specious part of felicity, according to his own description; 'I made me gardens and orchards, and planted trees in them of all kindes of fruit. I made me pools of water, to water therewith the wood that bringeth forth trees'; which was no ordinary plantation, if, according to the *Targum*, or Chaldee paraphrase, it contained all kinds of plants, and some fetched as far as India, and the extent thereof were from the wall of Jerusalem unto the water of Siloah.

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AND if Jordan were but *Jaar Eden*, that is, the river of Eden, Genesar but Gansar, or the prince of gardens; and it could be made out, that the plain of Jordan were watered not comparatively, but causally, and because it was the Paradise of God, as the learned Abramas hinteth; he was not far from the prototype and original of plantations. And since even in Paradise itself the tree of knowledge was placed in the middle of the garden, whatever was the ambient figure, there wanted not a centre and rule of decussation. Whether the groves & sacred plantations of antiquity were not thus orderly placed, either by *quaternios* or quintuple ordinations, may favourably be doubted. For since they were so methodical in the constitution of their temples, as to observe the due situation, aspect, manner, form & order in architectonical relations, whether they were not as distinct in their groves and plantations about them in form and species respectively unto their deities, is not without probability of conjecture. And in their groves of the sun this was a fit number by multiplication to denote the days of the year, & might heiroglyphically speak

as much as the mystical *statua* of Janus in the language of his fingers. And
since they were so critical in the number of his horses, the strings of his
harp and rays about his head denoting the orbs of Heaven, the
seasons and months of the year, witty idolatry
would hardly be flat in other
appropriations.

II.

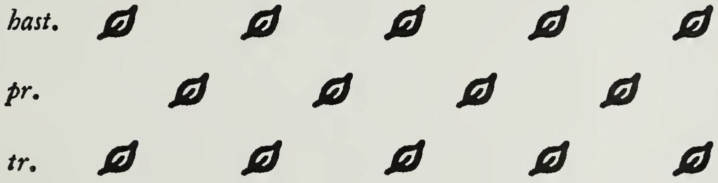
NOR WAS THIS ONELY A FORM OF PRACTICE in plantations, but found imitation from high antiquity in sundry artificial contrivances and manual operations. For, to omit the position of squared stones *cuneatim* or wedgewise in the walls of Roman and Gothick buildings, and the *lithostrata* or figured pavements of the ancients, which consisted not all of square stones, but were divided into triquetrous segments, honey-combs, and sexangular figures, according to *Vitruvius*; the squared stones and bricks in ancient fabricks were placed after this order, and two above or below conjoyned by a middle-stone or plinthus, observable in the ruins of Forum Nervæ, the mausoleum of Augustus, the pyramid of Cestius, and the sculpture-draughts of the larger pyramids of Ægypt. And therefore in the draughts of eminent fabricks painters do commonly imitate this order in the lines of their description. ❦ IN the laureat draughts of sculpture & picture the leaves & foliate works are commonly thus contrived, which is but in imitation of the *pulvinaria* and ancient pillow-work, observable in Ionick pieces about columns, temples and altars. To omit other analogies in architectonical draughts; which art itself is founded upon fives, as having its subject & most gracefull pieces divided by this number. ❦ THE triumphal, oval, & civical crowns of laurel, oak, & myrtle, when fully made, were plaited after this order. And, to omit the crossed crowns of Christian princes, of what figure that was which Anastasius described upon the head of Leo the Third, or who first brought in the arched crown; that of Charles the Great (which seems the first remarkably-closed crown) was framed after this manner, with an intersection in the middle from the main crossing bars, and the interspaces unto the frontal circle continued by handsome net-work plaits, much after this order. Whereon we shall not insist, because from greater antiquity, & practice of consecration, we meet with the radiated and starry crown upon the head of Augustus, and many succeeding emperours; since the Armenians and Parthians had a peculiar royal cap, and the Græcians from Alexander another kinde of diadem. And even diadems themselves were but fasciations and handsome ligatures about the heads of princes; not wholly omitted in the mitral crown, which common picture seems to set too upright and forward upon the head of Aaron; worn sometimes singly or doubly by princes, according to their kingdomes, & no more to be expected from two crowns at once upon the head of Ptolemy. And so easily made out when historians tell us, some bound up wounds, some hanged themselves with diadems. ❦

THE beds of the ancients were corded somewhat after this fashion; that is, not directly, as ours at present, but obliquely, from side to side, & after the manner of network; whereby they strengthened the *spondæ* or bedsides, and spent less cord in the work, as is demonstrated by Blancanus.

❦ AND as they lay in crossed beds, so they sat upon seeming cross-legg'd seats; in which form the noblest thereof were framed; observable in the triumphal seats, the *sella curulis* or Ædile chair, in the coins of Cestius, Sylla, and Julius. That they sat also cross-legg'd many noble draughts declare; and in this figure the sitting gods and goddesses are drawn in medalls & medallions. And beside this kind of work in retiarie & hanging tectures, in embroideries & eminent needle-works, the like is obvious unto every eye in glass-windows; not onely in glassie contrivances, but also in lattice & stone-work, conceived in the temple of Solomon, wherein the windows are termed *fenestræ reticulatæ*, or lights framed like nets; and agreeable unto the Greek expression concerning Christ in the Canticles, 'looking through the nets,' which ours hath rendred, 'He looketh forth at the windows, shewing himself through the lattesse,' that is, partly seen & unseen, according to the visible & invisible side of his nature. To omit the noble reticulate work in the chapiters of the pillars of Solomon with lillies & pomegranates upon a network-ground; & the *craticula* or grate through which the ashes fell in the altar of burnt-offerings. ❦

THAT the networks & nets of antiquity were little different in the form from ours at present, is confirmable from the nets in the hands of the retiarie gladiators, the proper combatants with the *secutores*. To omit the ancient *conopeion* or gnat-net of the Ægyptians, the inventors of that artifice; the rushy labyrinths of Theocritus; the nosegay-nets which hung from the head under the nostrils of princes; and that uneasie metaphor of *reticulum jecoris*, which some expound the lobe, we the caul above the liver. As for that famous network of Vulcan, which inclosed Mars and

Venus, and caused that unextinguishable laugh in Heaven; since the gods themselves could not discern it, we shall not prie into it; although why Vulcan bound them, Neptune loosed them, and Apollo should first discover them, might afford no vulgar mythologie. Heralds have not omitted this order or imitation thereof, whiles they symbolically adorn their scutcheons with mascles, fusils and saltirs, & while they dispose the figures of ermins and varied coats in this quincuncial method. ❧ THE same is not forgot by lapidaries, while they cut their gems pyramidally or by equicrural triangles. Perspective pictures, in their base, horizon, and lines of distances, cannot escape these rhomboidal decussations. Sculptors, in their strongest shadows, after this order do draw their double hatches. And the very Americans do naturally fall upon it in their neat and curious textures, which is also observed in the elegant artifices of Europe. But this is no law unto the woof of the neat retiary spider, which seems to weave without transversion, & by the union of right lines to make out a continued surface, which is beyond the common art of textury, and may still nettle Minerva, the goddess of that mysterie. And he that shall hatch the little seeds, either found in small webs or white round eggs, carried under the bellies of some spiders, and behold how at their first production in boxes they will presently fill the same with their webs, may observe the early and untaught finger of nature, and how they are natively provided with a stock sufficient for such texture. ❧ THE rural charm against dodder, tetter & strangling weeds was contrived after this order, while they placed a chalked tile at the four corners & one in the middle of their fields; which, though ridiculous in the intention was rational in the contrivance, & a good way to diffuse the magick through all parts of the area. ❧ SOMEWHAT after this manner they ordered the little stones in the old game of *Pentalithismus*, or casting up five stones to catch them on the back of their hand. And with some resemblance hereof the *proci*, or prodigal paramours, disposed their men, when they played *Penelope*. For, being themselves an hundred and eight, they set fifty-four stones on either side, and one in the middle which they called Penelope; which he that hit was master of the game. ❧ IN chess boards and tables we yet finde pyramids and squares. I wish we had their true and ancient description, far different from ours, or the *chec-mate* of the Persians, which might continue some elegant remarkables as being an invention as high as Hermes, the secretary of Osiris, figuring the whole world, the motion of the planets, with eclipses of Sun and Moon. ❧ PHYSICIANS are not without the use of this decussation in several operations, in ligatures and union of dissolved continuities. Mechanicks make use hereof in forcipal organs and instruments of incision; wherein who can but magnifie the power of decussation, inservient to contrary ends, solution and consolidation, union & division, illustrable from Aristotle in the old *nucifragium*, or nutcracker, and the instruments of evulsion, compression, or incision, which, consisting of two *vectes*, or arms, converted towards each other, the innitency & stress being made upon the *hypomochlion*, or fulciment in the decussation, the greater compression is made by the union of two impulsors. ❧ THE Roman *battalia* was ordered after this manner, whereof as sufficiently known, Virgil hath left but an hint and obscure intimation. For thus were the maniples and cohorts of the *hastati*, *principes*, and *triarii* placed in their bodies, wherein consisted the strength of the Roman battel. By this ordination they readily fell into each other; the



hastati, being pressed, handsomely retired into the intervalls of the *principes*, these into that of the *triarii*, which making as it were a new body might joyntly renew the battel, wherein consisted the secret of their successes. And therefore it was remarkably singular in the battel of Africa that Scipio fearing a rout from the elephants of the enemy left not the *principes* in their alternate distances, whereby the elephants passing the vacuities of the *hastati* might have run upon them, but drew his battel into right order, and leaving the passages bare, defeated the mischief intended by the elephants. Out of this figure were made two remarkable forms of battel, the *cuneus* and *forceps*, or the shear and wedge battels, each made of half a *rhombus*, and but differenced by position. The wedge invented to break or work into a body, the *forceps* to environ and defeat the power thereof, composed out of the selectest souldiery, and disposed into the form of a V, wherein receiving the wedge, it inclosed it on both sides. After this form the famous Narses ordered his battel against the Franks; & by this figure the Almans were enclosed, & cut in pieces. ❧ THE *rhombus* or lozenge-figure, so visible in this order, was also a remarkable form of battel in the Græcian cavalry, observed by the Thessalians and Philip King of Macedon, and frequently by the Parthians, as being most ready to turn every way, & best to be commanded, as having its ductors or commanders at each angle. ❧ THE Macedonian *phalanx* (a long time thought invincible) consisted of a long square. For though they might be sixteen in rank & file, yet when they shut close, so that the sixth pike advanced before the first rank, though the number might be square, the figure was oblong, answerable unto the quincuncial quadrate of Curtius. According to this square Thucydides delivers the Athenians disposed their battel against the Lacedæmonians, brick-wise; and by the same word the learned Guellius expoundeth the quadrat of Virgil, after the form of a brick or tile. ❧ AND as the first station & position of trees, so was the first habitation of men, not in round cities, as of later foundation; for the form of Babylon, the first city, was square, & so shall also be the last, according to the description of the Holy City in the Apocalypse. The famous pillars of Seth before the floud had also the like foundation, if they were but antidiluvian obelisks, and such as Cham and his Ægyptian race imitated after the floud. ❧ BUT Niniveh, which authours acknowledge to have exceeded Babylon, was of a longilateral figure, ninety-five furlongs broad, and an hundred and fifty long, and so making about sixty miles in circuit, which is the measure of three days journey, according unto military marches, or castrensial mansions. So that, if Jonas entered at the narrower side, he found enough for one day's walk to attain the heart of the city to make his proclamation. And, if we imagine a city extending from Ware to London, the expression will be moderate of sixscore thousand infants, although we allow vacuities, fields, and intervals of habitation, as there needs must be when the monument of Ninus took up no less than ten furlongs. ❦ AND, though none of the Seven Wonders, yet a noble piece of antiquity, and made by a copy exceeding all the rest, had its principal parts disposed after this manner, that is, the Labyrinth of Crete, built upon a long quadrate containing five large squares, communicating by right inflexions, terminating in the centre of the middle square and lodging of the Minotaur, if we conform unto the description of the elegant medal thereof in Agostino. And, though in many accounts we reckon grossly by the square, yet is that very often to be accepted as a long-sided quadrate, which was the figure of the ark of the covenant, the table of the shewbread, & the stone wherein the names of the twelve tribes were engraved, that is three in a row, naturally making a longilateral figure, the perfect quadrate being made by nine. ❦ WHAT figure the stones themselves maintained tradition & Scripture are silent, yet lapidaries in precious stones affect a table or long square, and in such proportion that the two lateral & also the three inferior tables are equal unto the superior, and the angles of the lateral tables contain and constitute the *hypothenusæ*, or broader sides subtending. ❦ THAT the Tables of the Law were of this figure general imitation and tradition hath confirmed. Yet are we unwilling to load the shoulders of Moses with such massy stones, as some pictures lay upon them; since it is plainly delivered that he came down with them in his hand; since the word strictly taken implies no such massy hewing, but cutting and fashioning of them into shape and surface; since some will have them emeralds, and, if they were made of the materials of Mount Sinai, not improbable that they were marble; since the words were not many, the letters short of seven hundred, and the Tables, written on both sides, required no such capacity. ❦ THE beds of the ancients were different from ours at present, which are almost square, being framed oblong and about a double unto their breadth, not much unlike the area or bed of this quincuncial quadrate. The single beds of Greece were six feet and a little more in length, three in breadth; the giant-like bed of Og, which had four cubits of breadth, nine and a half in length, varied not much from this proportion. The funeral bed of King Cheops, in the greater pyramid, which holds seven

in length and four feet in breadth, had no great deformity from this measure; and, whatsoever were the breadth, the length could hardly be less of the tyrannical bed of Procrustes, since in a shorter measure he had not been fitted with persons for his cruelty of extension. But the old sepulchral bed, or Amazonian tomb, in the market-place of Megara was in the
form of a lozenge, readily made out by the composure of the
body; for, the arms not lying fasciated or wrapt up
after the Græcian manner but in a middle
distension, the including lines
will strictly make out
that figure.

III.

NOW ALTHOUGH THIS ELEGANT ORDINAtion of vegetables hath found coincidence or imitation in sundry works of art; yet is it not also destitute of natural examples, and, though overlooked by all, was elegantly observable in several works of nature. ❧ COULD we satisfie ourselves in the position of the lights above, or discover the wisedom of that order so invariably maintained in the fixed stars of Heaven; could we have any light, why the stellary part of the first mass separated into this order, that the girdle of Orion should ever maintain its line, and the two stars in Charles' Wain never leave pointing at the pole star; we might abate the Pythagorical musick of the spheres, the sevenfold pipe of Pan, and the strange cryptography of Gaffarel in his starry book of Heaven. ❧ BUT not to look so high as Heaven, or the single quincunx of the *Hyades* upon the neck of Taurus, the triangle and remarkable *crusero* about the foot of the Centaur; observable rudiments there are hereof in subterraneous concretions and bodies in the earth; in the *gypsum* or *talcum rhomboides*, in the *favaginites* or honey-comb stone, in the *asteria* & *astroïtes*, & in the crucigerous stone of S. Jago of Gallicia. ❧ THE same is observedly effected in the *jülus*, catkins, or pendulous excrescencies of several trees, of walnuts, alders & hazels, which hanging all the winter, and maintaining their net-work close, by the expansion thereof are the early foretellers of the spring; discoverable also in long pepper, and elegantly in the *jülus* of *calamus aromaticus*, so plentifully growing with us in the first palms of willows, and in the flowers of sycamore, *petasites*, *asphodelus*, and *blattaria*, before explication. After such order stand the flowery branches in our best-spread *verbescum*, and the seeds about the spicous head or torch of *tapsus barbatus*, in as fair a regularity as the circular and wreathed order will admit, which advanceth one side of the square, & makes the same rhomboidal. In the squamous heads of scabious, knapweed, and the elegant *jacea pinea*, and in the scaly composure of the oak-rose, which some years most aboundeth. After this order hath nature planted the leaves in the head of the common & prickled artichoak, wherein the black & shining flies do shelter themselves, when they retire from the purple flower about it. The same is also found in the pricks, sockets & impressions of the seeds, in the pulp or bottom thereof; wherein do elegantly stick the fathers of their mother. To omit the quincuncial specks on the top of the miscle-berry, especially that which grows upon the *tilia* or lime-tree; and the remarkable disposure of those yellow fringes about the purple pestill of Aaron, and elegant clusters of dragons, so peculiarly secured by nature with an umbrella or screening leaf about them. ❦ THE spongy leaves of some sea-wracks, fucus, oaks in their several kindes, found about the shore with ejectments of the sea, are overwrought with net-work elegantly containing this order; which plainly declareth the naturality of this texture, and how the needle of nature delighteth to work even in low and doubtfull vegetations. ❦ THE *arbustetum* or thicket on the head of the teazil may be observed in this order: and he that considereth that fabrick so regularly palisado'd and stemmed with flowers of the royal colour, in the house of the solitary maggot may finde the seraglio of Solomon; and contemplating the calicular shafts & uncous disposure of their extremities, so accommodable unto the office of abstersion, not condemn as wholly improbable the conceit of those who accept it for the herb *borith.* Where by the way we could with much inquiry never discover any transfiguration in this abstemious insect, although we have kept them long in their proper houses and boxes, where some, wrapt up in their webs, have lived upon their own bowels from September unto July. ❦ IN such a grove do walk the little creepers about the head of the burre. And such an order is observed in the aculeous prickly plantation upon the heads of severall common thistles, remarkably in the notable palisadoes about the flower of the milk-thistle: and he that inquireth into the little bottom of the globe-thistle, may find that gallant bush arise from a scalp of like disposure. ❦ THE white umbrella, or medicall bush of elder, is an epitome of this order, arising from five main stemms quincuncially disposed and tolerably maintained in their sub-divisions. To omit the lower observations in the seminal spike of mercurie wild and plantane. ❦ THUS hath nature ranged the flowers of santfoyn, and French honeysuckle, and somewhat after this manner hath ordered the bush in Jupiter's beard, or house-leek, which old superstition set on the tops of houses as a defensative against lightning and thunder. The like in fenny seagreen, or the water-souldier, which, though a military name from Greece, makes out the Roman order. ❧ A LIKE ordination there is in the favaginous sockets & lozenge seeds of the noble flower of the Sun, wherein in lozenge-figured boxes nature shuts up the seeds and balsame which is about them. ❧ BUT the firre & pine-tree from their fruits do naturally dictate this position; the rhomboidal protuberances in pine-apples maintaining this quincuncial order unto each other, and each *rhombus* in itself. Thus are also disposed the triangular foliations in the conicall fruit of the firre-tree orderly shadowing and protecting the winged seeds below them. ❧ THE like so often occurreth to the curiosity of observers, especially in spicated seeds and flowers, that we shall not need to take in the single quincunx of *Fuchsius* in the growth of the male-fern, the seedy disposure of *gramen ischemon*, and the trunk or neat reticulate work in the cod of the sachell palm. ❧ FOR even in very many round stalked plants the leaves are set after a quintuple ordination, the first leaf answering the fifth in lateral disposition. Wherein the leaves successively rounding the stalk, in four at the farthest the compass is absolved, & the fifth leaf or sprout returns to the position of the other fifth before it; as in accounting upward is often observable in furze, pellitory, ragweed, the sprouts of oaks and thorns upon pollards, and very remarkable in the regular disposure of the rugged excrescencies in the yearly shoots of the pine. ❧ BUT in square-stalked plants the leaves stand respectively unto each other, either in cross or decussation to those above or below them, arising at cross positions; whereby they shadow not each other, and better resist the force of winds, which in a parallel situation and upon square stalks would more forcibly beat upon them. ❧ AND —to omit how leaves and sprouts which compass not the stalk are often set in a *rhomboides*, and, making long and short diagonals, do stand like the legs of quadrupeds when they go; nor to urge the thwart enclosure and furdling of flowers and blossomes before explication, as in the multiplied leaves of peonie; and the *chiasmus* in five-leaved flowers, while one lies wrapt about the staminous beards, the other four obliquely shutting and closing upon each other, and how even flowers which consist of four leaves stand not ordinarily in three and one, but two and two crosswise, unto the *stylus*—even the autumnal buds, which await the return of the sun, do after the winter solstice multiply their calicular leaves, making little rhombuses & network figures, as in the sycamore & lilac. ❧ THE like is discoverable in the original production of plants, which first putting forth two leaves, those which succeed bear not over each other, but shoot obliquely or crosswise, untill the stalk appeareth, which sendeth not forth its first leaves without all order unto them, and he that from hence can discover in what position the two first leaves did arise is no ordinary observator. ❧ WHERE, by the way, he that observeth the rudimental spring of seeds shall find strict rule, although not after this order. How little is required unto effectual generation, & in what diminutives the plastick principle lodgeth, is exemplified in seeds, wherein the greater mass affords so little comproduction. In beans the leaf and root sprout from the germen, the main sides split & lie by; & in some pull'd up near the time of blooming we have found the pulpous sides intire or little wasted. In acorns the neb dilating splitteth the two sides, which sometimes lie whole, when the oak is sprouted two handfuls. In lupines these pulpy sides do sometimes arise with the stalk in the resemblance of two fat leaves. Wheat and rie will grow up if, after they have shot some tender roots, the adhering pulp be taken from them. Beans will prosper though a part be cut away, and so much set as sufficeth to contain and keep the germen close. From this superfluous pulp in unkindly and wet years may arise that multiplicity of little insects which infest the roots and sprouts of tender grain and pulses. ❧ IN the little neb or fructifying principle the motion is regular and not transvertible, as to make that ever the leaf which nature intendeth the root; observable from their conversion, untill they attain their right position, if seeds be set inversedly. ❧ IN vain we expect the production of plants from different parts of the seed; from the same corculum, or little original, proceed both germinations; and in the power of this slender particle lie many roots & sprouts, that, though the same be pull'd away, the generative particle will renew them again, and proceed to a perfect plant; and malt may be observed to grow, though the cooms be fallen from it. ❧ THE seminal neb hath a defined and single place, and not extended unto both extremes. And therefore many too vulgarly conceive that barley and oats grow at both ends; for they arise from one punctilio, or generative neb, and the spear, sliding under the husk, first appeareth nigh the top. But in wheat and rie, being bare, the sprouts are seen together. If barley unhulled would grow, both would appear at once. But in this & oatmeal the neb is broken away, which makes them the milder food and less apt to raise fermentation in decoctions. Men taking notice of what is outwardly visible conceive a sensible priority in the root. But as they begin from one part, so they seem to start and set out upon one signal of nature. In beans yet soft, in peas while they adhere to the cod, the rudimental leaf and root are discoverable. In the seeds of rocket and mustard sprouting in glasses of water when the one is manifest the other is also perceptible. In muddy water apt to breed duckweed and periwinkles, if the first and rudimental strokes of duckweed be observed, the leaves and root anticipate not each other. But in the date stone the first sprout is neither root nor leaf distinctly, but both together; for, the germination being to pass through the narrow navel and hole about the midst of the stone, the generative germ is fain to enlengthen itself, and, shooting out about an inch, at that distance divideth into the ascending and descending portion. ❦ AND though it be generally thought that seeds will root at that end where they adhere to their originals, and observable it is that the neb fits most often next the stalk, as in grains, pulses, and most small seeds; yet is it hardly made out in many greater plants. For in acorns, almonds, pistachios, walnuts, and acuminated shells, the germ puts forth at the remotest part of the pulp. And therefore to set seeds in that posture wherein the leaf and roots may shoot right without contortion or forced circumvolution, which might render them strongly rooted and straighter, were a criticism in agriculture. And nature seems to have made some provision hereof in many from their figure, that as they fall from the tree they may lie in positions agreeable to such advantages. ❦ BESIDE the open and visible testicles of plants, the seminal pores lie in great part invisible, while the Sun finds polypody in stone-walls, the little stinging nettle & nightshade in barren sandy highways, scurvy-grass in greenland, and unknown plants brought in earth from remote countreys. Beside the known longevity of some trees, what is the most lasting herb or seed seems not easily determinable. Mandrakes upon known account have lived near an hundred years. Seeds found in wild-fowls gizzards have sprouted in the earth. The seeds of marjoram and *stramonium*, carelessly kept, have grown after seven years. Even in garden-plots long fallow, and digged up, the seeds of *blattaria* and yellow henbane after twelve years buriall have produced themselves again. ❧ THAT bodies are first spirits Paracelsus could affirm, which in the maturation of seeds and fruits seems obscurely implied by Aristotle, when he delivereth that the spirituous parts are converted into water, and the water into earth; and attested by observation in the maturative progress of seeds, wherein at first may be discerned a flatuous distension of the husk, afterwards a thin liquour, which longer time digesteth into a pulp or kernell, observable in almonds & large nuts; and someway answered in the progressional perfection of animal semination, in its spermaticall maturation from crude pubescency unto perfection. And even that seeds themselves in their rudimentall discoveries appear in foliaceous surcles or sprouts within their coverings, in a diaphanous jellie, before deeper incrassation, is also visibly verified in cherries, acorns, plums. ❧ FROM seminal considerations, either in reference unto one another, or distinction from animal production, the Holy Scripture describeth the vegetable creation; and while it divideth plants but into herb and tree, though it seemeth to make but an accidental division, from magnitude, it tacitly containeth the natural distinction of vegetables observed by herbarists, and comprehending the four kinds. For since the most natural distinction is made from the production of leaf or stalk, & plants after the two first seminal leaves do either proceed to send forth more leaves, or a stalk; and the folious and stalky emission distinguisheth herbs & trees. In a large acception it compriseth all vegetables; for the *frutex* & *suffrutex* are under the progression of trees: they stand authentically differenced but from the accidents of the stalk. ❧ THE equivocal production of things under undiscerned principles makes a large part of generation, though they seem to hold a wide univocacy in their set and certain originals, while almost every plant breeds its peculiar insect, most a butterfly, a moth or fly, wherein the oak seems to contain the largest seminality, while the jülus, oak-apple, dill, woolly tuft, foraminous roundles upon the leaf, & grapes underground make a fly with some difference. The great variety of flies lies in the variety of their originals; in the seeds of caterpillars or cankers there lieth not onely a butterfly or moth, but, if they be sterile or untimely cast, their production is often a fly, which we have also observed from corrupted and mouldred eggs both of hens and fishes; to omit the generation of bees out of the bodies of dead heifers, or, what is strange yet well attested, the production of eels in the backs of living cods & perches. ❦ THE exiguity and smallness of some seeds extending to large productions is one of the magnalities of nature, somewhat illustrating the work of the creation and vast production from nothing. The true seeds of cypress and rampions are indistinguishable by old eyes. Of the seeds of tobacco a thousand make not one grain. The disputed seeds of hartstongue and maidenhair require a greater number. From such undiscernible seminalities arise spontaneous productions. He that would discern the rudimentall stroke of a plant may behold it in the original of duckweed, at the bigness of a pin's point, from convenient water in glasses, wherein a watchfull eye may also discover the puncticular originals of periwinkles and gnats. ❦ THAT seeds of some plants are less than any animals seems of no clear decision; that the biggest of vegetables exceedeth the biggest of animals in full bulk, and all dimensions admits exception in the whale, which in length and above-ground measure will also contend with tall oaks. That the richest odour of plants surpasseth that of animals may seem of some doubt, since animal-musk seems to excell the vegetable, and we find so noble a scent in the tulip-fly and goat beetle. ❦ NOW whether seminal nebs hold any sure proportion unto seminal enclosures; why the form of the germ doth not answer the figure of the enclosing pulp; why the neb is seated upon the solid & not the channel'd side of the seed as in grains; why, since we often meet with two yolks in one shell and sometimes one egg within another, we do not oftener meet with two nebs in one distinct seed; why, since the eggs of a hen laid at one course do commonly outweigh the bird & some moths coming out of their cases without assistance of food will lay so many eggs as to outweigh their bodies, trees rarely bear their fruit in that gravity or proportion; whether in the germination of seeds, according to Hippocrates, the lighter part ascendeth & maketh the sprout, the heaviest tending downward frameth the root, since we observe that the first shoot of seeds in water will sink or bow down at the upper & leafing end; whether it be not more rational Epicurism to contrive whole dishes out of the nebs & spirited particles of plants than from the gallatures & treadles of eggs, since that part is found to hold no seminal share in oval generation, are queries which might enlarge, but must conclude this disgression. ❦ AND though not in this order, yet how nature delighteth in this number, and what consent and co-ordination there is in the leaves & parts of flowers, it cannot escape our observation in no small number of plants. For the calicular or supporting and closing leaves do answer the number of the flowers, especially in such as exceed not the number of swallows-eggs; as in violets, stitchwort blossomes: & flowers of one leaf have often five divisions, answered by a like number of calicular leaves, as *gentianella*, *convolvulus*, bell-flowers. In many the flowers, blades, or staminous shoots & leaves are all equally five; as in cockle, mullein & *blattaria*, wherein the flowers before explication are pentagonally wrapped up, with some resemblance of the *blatta* or moth, from whence it hath its name. But the contrivance of nature is singular in the opening & shutting of bindweeds, performed by five inflexures, distinguishable by pyramidicall figures and also different colours. ❦ THE rose at first is thought to have been of five leaves, as it yet groweth wild among us; but in the most luxuriant the calicular leaves do still maintain that number. But nothing is more admired than the five brethren of the rose, and the strange disposure of the appendices or beards in the calicular leaves thereof; which, in despair of resolution, is tolerably salved from this contrivance, best ordered & suited for the free closure of them before explication. For those two which are smooth and of no beard are contrived to lie undermost, as without prominent parts, & fit to be smoothly covered; the other two which are beset with beards on either side stand outward and uncovered; but the fifth or half-bearded leaf is covered on the bare side, but on the open side stands free, and bearded like the other. ❦ BESIDES a large number of leaves have five divisions, and may be circumscribed by a pentagon or figure of five angles, made by right lines from the extremity of their leaves; as in maple, vine, fig-tree. But five-leaved flowers are commonly disposed circularly about the stylus, according to the higher geometry of nature, dividing a circle by five radii, which concurre not to make diameters, as in quadrilateral and sexangular intersections. ❧ NOW the number of five is remarkable in every circle, not onely as the first spherical number, but the measure of spherical motion. For spherical bodies move by fives, and every globular figure, placed upon a plane, in direct volutation returns to the first point of contaction in the fifth touch, accounting by the axes of the diameters or cardinal points of the four quarters thereof: and before it arriveth unto the same point again, it maketh five circles equal unto itself, in each progress from those quarters absolving an equal circle. ❧ BY the same number doth nature divide the circle of the sea-star, and in that order and number disposeth those elegant semi-circles or dental sockets and eggs in the sea-hedgehog. And no mean observation hereof there is in the mathematicks of the neatest retiary spider, which concluding in forty-four circles, from five semidiameters beginneth that elegant texture. ❧ AND after this manner doth lay the foundation of the circular branches of the oak, which being five-cornered in the tender annual sprouts, & manifesting upon incision the signature of a star, is after made circular, & swell'd into a round body. Which practice of nature is become a point of art, and makes two problems in Euclid. But the briar, which sends forth shoots and prickles from its angles, maintains its pentagonal figure, and the unobserved signature of a handsome porch within it. To omit the five small buttons dividing the circle of the ivy-berry, and the five characters in the winter-stalk of the walnut, with many other observables, which cannot escape the eyes of signal discerners; such as know where to find Ajax his name in *delphinium*, or Aaron's mitre in henbane. ❧ QUINCUNCIAL forms & ordinations are also observable in animal figurations. For to omit the *hyoides* or throat-bone of animals; the *furcula* or merry-thought in birds, which supporteth the *scapulæ*, affording a passage for the windpipe and the gullet; the wings of flies, and disposure of their legs in their first formation from maggots, & the position of their horns, wings, and legs in their aurelian cases and swaddling-clouts: the back of the *cimex arboreus*, found often upon trees and lesser plants, doth elegantly discover the Burgundian decussation. And the like is observable in the belly of the *notonecton* or water-beetle, which swimmeth on its back; and the handsome *rhombus* of the sea-poult or werrell, on either side the spine. ❧ THE sexangular cells in the honeycombs of bees are disposed after this order: much there is not of wonder in the confused houses of pismires, though much in their busie life and actions, more in the edificial palaces of bees & monarchical spirits, who make their comb six-corner'd, declining a circle (whereof many stand not close together, and compleatly fill the area of the place), but rather affecting a six-sided figure, whereby every cell affords a common side unto six more, and also a fit receptacle for the bee itself, which gathering into a cylindrical figure aptly enters its sexangular house, more nearly approaching a circular figure than either doth the square or triangle; & the combs themselves are so regularly contrived that their mutual intersections make three lozenges at the bottom of every cell; which severally regarded make three rows of neat rhomboidal figures, connected at the angles, and so continue three several chains throughout the whole comb. ❧ AS for the *favago* found commonly on the sea shore, though named from an honeycomb it but rudely makes out the resemblance, & better agrees with the round cells of humble bees. He that would exactly discern the shape of a bee's mouth needs observing eyes and good augmenting glasses; wherein is discoverable one of the neatest pieces in nature; and he must have a more piercing eye than mine who finds out the shape of the bulls' heads in the guts of drones pressed out behind, according to the experiment of Gomesius, wherein, notwithstanding, there seemeth somewhat which might incline a pliant fancy to credulity of similitude. ❧ A RESEMBLANCE hereof there is in the orderly and rarely disposed cells made by flies and insects, which we have often found fastened about small sprigs; & in those cottonary and woolly pillows which sometimes we meet with fastened unto leaves there is included an elegant network texture, out of which come many small flies. And some resemblance there is of this order in the eggs of some butterflies and moths, as they stick upon leaves and other substances, which, being dropped from behind nor directed by the eye, doth nearly declare how nature geometrizeth and observeth order in all things. ❦ A LIKE correspondency in figure is found in the skins and outward teguments of animals, whereof a regardable part are beautifull by this texture. As the backs of several snakes and serpents, elegantly remarkable in the *aspis* and the dart-snake, in the *chiasmus* and larger decussations upon the back of the rattle-snake, and in the close and finer texture of the *mater formicarum*, or snake that delights in ant hills; whereby, upon approach of outward injuries, they can raise a thicker phalanx on their backs, and handsomely contrive themselves into all kinds of flexures; whereas their bellies are commonly covered with smooth semicircular divisions, as best accommodable unto their quick and gliding motion. ❦ THIS way is followed by nature in the peculiar and remarkable tail of the beaver, wherein the scaly particles are disposed somewhat after this order, which is the plainest resolution of the wonder of Bellonius, while he saith, 'with incredible artifice hath nature framed the tail or oar of the beaver'; where, by the way, we cannot but wish a model of their houses, so much extolled by some describers; wherein, since they are so bold as to venture upon three stages, we might examine their artifice in the contignations, the rule & order in the compartitions; or whether that magnified structure be any more than a rude rectangular pile or mere hovel-building. ❦ THUS works the hand of nature in the feathery plantation about birds. Observable in the skins of the breast, legs, and pinions of turkies, geese and ducks, and the oars or finny feet of waterfowl; and such a natural net is the scaly covering of fishes, of mullets, carps, tenches, &c., even in such as are excoriable and consist of smaller scales, as bretts, soles, and flounders. The like reticulate grain is observable in some Russia-leather. To omit the ruder figures of the *ostracion*, the triangular or cunny-fish, or the pricks of the sea-porcupine. ❦ THE same is also observable in some part of the skin of man, in habits of neat texture, and therefore not unaptly compared unto a net: we shall not affirm that from such grounds the Ægyptian embalmers imitated this texture, yet in their linen folds the same is still observable among their neatest mummies, in the figures of Isis & Osiris & the tutelary spirits in the Bembine Table. Nor is it to be overlooked how Horus, the hieroglyphick of the world, is described in a network covering, from the shoulder to the foot. And (not to enlarge upon the cruciated character of Trismegistus, or handed crosses, so often occuring in the needles of Pharaoh, and obelisks of antiquity), the *Statuæ Isiacæ*, Teraphim & little idols found about the mummies do make a decussation of Jacob's cross, with their arms, like that on the head of Ephraim & Manasseh, & this *decussis* is also graphically described between them. ❧ THIS reticulate, or network was also considerable in the inward parts of man, not onely from the first *subtegemen*, or warp, of his formation, but in the netty fibres of the veins & vessels of life; wherein according to common anatomie the right & transverse fibres are decussated by the oblique fibres, & so must frame a reticulate & quincuncial figure by their obliquations, emphatically extending that elegant expression of Scripture: 'Thou hast curiously embroidered me, thou hast wrought me up after the finest way of texture & as it were with a needle.' ❧ NOR is the same observable onely in some parts, but in the whole body of man, which upon the extension of arms & legs doth make out a square, whose intersection is at the genitals. To omit the phantastical quincunx in Plato of the first hermaphrodite or double man, united at the loins, which Jupiter after divided. ❧ A RUDIMENTAL resemblance hereof there is in the cruciated and rugged folds of the *reticulum* or net-like ventricle of ruminating horned animals, which is the second in order, culinarily called the honey-comb: for many divisions there are in the stomack of several animals. What number they maintain in the *scarus* and ruminating fish, common description or our own experiment hath made no discovery. But in the ventricle of porpusses there are three divisions; in many birds a crop, gizzard, and little receptacle before it. But in cornigerous animals, which chew the cud, there are no less than four of distinct position & office. ❧ THE *reticulum* by these crossed cells makes a farther digestion in the dry and exsuccous part of the aliment received from the first ventricle. For at the bottome of the gullet there is a double orifice: what is first received at the mouth descendeth into the first and greater stomack, from whence it is returned into the mouth again; and after a fuller mastication & salivous mixture, what part thereof descendeth again in a moist & succulent body, it slides down the softer & more permeable orifice into the *omasus* or third stomack; and from thence conveyed into the fourth, receives its last digestion. The other dry and exsuccous part, after rumination by the larger and stronger orifice, beareth into the first stomack, from thence into the *reticulum*, & so progressively into the other divisions. And therefore in calves newly calved there is little or no use of the two first ventricles, for the milk and liquid aliment slippeth down the softer orifice into the third stomack; where making little or no stay, it passeth into the fourth, the seat of the *coagulum* or runnet, or that division of stomack which seems to bear the name of the whole in the Greek translation of the priest's fee in the sacrifice of peace-offerings. ❧ AS for those rhomboidal figures made by the cartilagineous parts of the wezon in the lungs of great fishes and other animals, as Rondeletius discovered, we have not found them so to answer our figure as to be drawn into illustration. Something we expected in the more discernable texture of the lungs of frogs, which notwithstanding being but two curious bladders, not weighing above a grain, we found interwoven with veins, not observing any just order. More orderly situated are those cretaceous and chalky concretions found sometimes in the bigness of a small vetch on either side their spine; which being not agreeable unto our order, nor yet observed by any, we shall not here discourse on. ❧ BUT had we found a better account and tolerable anatomy of that prominent jowl of the spermaceti whale, than questuary operation or the stench of the last cast upon our shoar permitted, we might have perhaps discovered some handsome order in those net-like seats and sockets, made like honeycombs, containing that medicall matter. ❧ LASTLY, the incession or local motion of animals is made with analogy unto this figure, by decussative diametrals, quincuncial lines and angles. For, to omit the enquiry how butterflies and breezes move their four wings, how birds & fishes in aire & water move by joynt stroaks of opposite wings and fins, and how salient animals in jumping forward seem to arise and fall upon a square base; as the station of most quadrupedes is made upon a long square, so in their motion they make a *rhomboides*, their common progression being performed diametrally by decussation and cross advancement of their legs; which not observed, begot that remarkable absurdity in the position of the legs of

Castor's horse in the capitol. The snake, which moveth circularly, makes his spires in like order, the convex and concave spirals answering each other at alternate distances. In the motion of man the arms & legs observe this thwarting position; but the legs alone do move quincuncially by single angles, with some resemblance of a V, measured by successive advancement from each foot & the angle of indenture great or less, according to the extent or brevity of the stride. ❧ STUDIOUS observators may discover more analogies in the orderly book of nature, and cannot escape the elegancy of her hand in other correspondencies. The figures of nails & crucifying appurtenances are but precariously made out in the *granadilla* or flower of Christ's Passion; and we despair to behold in these parts that handsome draught of crucifixion in the fruit of the Barbado pine. The seminal spike of *phalaris*, or great shaking-grass, more nearly answers the tail of a rattlesnake than many resemblances in Porta: and if the man-orchis of Columna be well made out, it excelleth all analogies. In young walnuts cut athwart it is not hard to apprehend strange characters; and in those of a somewhat elder growth, handsome ornamental draughts about a plain cross. In the root of *osmond*, or water-fern, every eye may discern the form of a half-moon, rainbow, or half the character of *pisces*. Some find Hebrew, Arabick, Greek and Latin characters in plants: in a common one among us we seem to read *Aiain, Viviu, Lilil.* ❧ RIGHT lines and circles make out the bulk of plants. In the parts thereof we find heliacall or spiral roundles, volutas, conicall sections, circular pyramids, and frustums of Archimedes. And cannot overlook the orderly hand of nature in the alternate succession of the flat and narrower sides in the tender shoots of the ash, or the regular inequality of bigness in the five-leaved flowers of henbane, and something like in the calicular leaves of tutson. How the spots of *persicaria* do manifest themselves between the sixth and tenth rib. How the triangular cap in the stem or *stylus* of tulips doth constantly point at three outward leaves. That spicated flowers do open first at the stalk; that white flowers have yellow thrums, or knops; that the nebs of beans and peas do all look downward, & so press not upon each other. And how the seeds of many pappous or downy flowers, lockt up in sockets after a *gomphosis*, or mortise-articulation, diffuse themselves circularly into branches of rare order, observable in *tragopogon*, or goats-beard, conformable to the spider's web, and the *radii* in like manner telarly interwoven. ❧ AND how in animal natures even colours hold correspondencies and mutual correlations. That the colour of the caterpillar will show again in the butterfly, with some latitude is allowable. Though the regular spots in their wings seem but a mealie adhesion and such as may be wiped away, yet, since they come in this variety out of their cases, there must be regular pores in those parts & membranes, defining such exudations. ❧ THAT Augustus had native notes on his body and belly, after the order and number in the stars of Charles' Wain, will not seem strange unto astral physiognomy, which accordingly considereth moles in the body of man, or physicall observators, who from the position of moles in the face reduce them to rule and correspondency in other parts. Whether after the like method medicall conjecture may not be raised upon parts inwardly affected, since parts about the lips are the criticall seats of pustules discharged in agues, and scrofulous tumours about the neck do so often speak the like about the mesentary, may also be considered. ❧ THE russet neck in young lambs seems but adventitious, and may owe its tincture to some contaction in the womb; but that, if sheep have any black or deep russet in their faces, they want not the same about their legs and feet; that black hounds have mealie mouths and feet; that black cows which have any white in their tails should not miss of some in their bellies, &, if all white in their bodies yet if black mouthed, their ears and feet maintain the same colour—are correspondent tinctures not ordinarily failing in nature, which easily unites the accidents of extremities, since in some generations she transmutes the parts themselves, while in the *aurelian metamorphosis* the head of the canker becomes the tail of the butterfly. Which is in some way not beyond the contrivance of art, in submersions and inlays, inverting the extremes of the plant and fetching the root from the top, and also imitated in handsome columnary work, in the inversion of the extremes, wherein the capital and the base hold such near correspondency. ❧ IN the motive parts of animals may be discovered mutual proportions; not onely in those of quadrupedes, but in the thigh-bone, leg, foot-bone, and claws of birds. The legs of spiders are made after a *sesquitertian* proportion, and the long legs of some locusts double unto some others. But the internodial parts of vegetables, or spaces between the joynts, are contrived with more uncertainty, though the joynts themselves in many plants maintain a regular number. ❦ IN vegetable composure the unition of prominent parts seems most to answer the *apophyses*, or processes of animal bones, whereof they are the produced parts or prominent explantations. And, though in the parts of plants which are not ordained for motion we do not expect correspondent articulations, yet in the setting on of some flowers and seeds in their sockets, & the lineal commissure of the pulp of several seeds, may be observed some shadow of the harmony, some show of the *gomphosis*, or mortise-articulation. ❦ AS for the *diarthrosis*, or motive articulation, there is expected little analogy; though long-stalked leaves do move by long lines and have observable motions, yet are they made by outward impulsion, like the motion of pendulous bodies, while the parts themselves are united by some kind of *symphysis* unto the stock. ❦ BUT standing vegetables void of motive articulations are not without many motions. For, besides the motion of vegetation upward and of radiation unto all quarters, that of contraction, dilatation, inclination, and contortion is discoverable in many plants. To omit the rose of Jericho, the ear of rie, which moves with change of weather, & the magical spit, made of no rare plants, which winds before the fire and roasts the bird without turning. ❦ EVEN animals near the classis of plants seem to have the most restless motions. The summer-worm of ponds & plashes makes a long waving motion, the hair-worm seldom lies still. He that would behold a very anomalous motion may serve it in the tortile and tiring strokes of gnat-worms.

IV.

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AS FOR THE DELIGHTS, COMMODITIES, MYSTERIES, with other concernments of this order, we are unwilling to fly them over in the short deliveries of Virgil, Varro, or others, and shall therefore enlarge with additional ampliations. ❦ BY this position they had a just proportion of earth to supply an equality of nourishment; the distance being ordered, thick or thin, according to the magnitude or vigorous attraction of the plant, the goodness, leanness, or propriety of the soil; and therefore the rule of Solon concerning the territory of Athens not extendible unto all, allowing the distance of six foot unto common trees, and nine for the fig and olive. ❦ THEY had a due diffusion of their roots on all or both sides, whereby they maintained some proportion to their height in trees of large radication. For that they strictly make good their *profundeur* or depth unto their height, according to common conceit, & that expression of Virgil, though confirmable from the plane-tree in Pliny, & some few examples, is not to be expected from the generation of trees almost in any kind, either of side-spreading or tap-roots; except we measure them by lateral and opposite diffusions; nor commonly to be found in *minor* or herby plants, if we except sea-holly, liquorish, sea-rush, and some others. ❦ THEY had a commodious radiation in their growth, & a due expansion of their branches for shadow or delight. For trees thickly planted do run up in height & branch with no expansion, shooting unequally, or short and thin, upon the neighbouring side. And therefore trees are inwardly bare, & spring & leaf from the outward & sunny side of their branches. ❦ WHEREBY they also avoided the perill of συνολεθρισμὸς, or one tree perishing with another, as it happeneth ofttimes from the sick *effluviums* or entanglements of roots, falling foul with each other; observable in elmes set in hedges, where if one dieth, the neighbouring tree prospereth not long after. ❦ IN this situation, divided into many intervalls, and open unto six passages, they had the advantage of a fair perflation from winds, brushing and cleansing their surfaces, relaxing and closing their pores unto due perspiration. For that they afford large *effluviums*, perceptible from odours diffused at great distances, is observable from onions out of the earth, which though dry, and kept untill the spring, as they shoot forth large and many leaves, do notably abate of their weight: and mint growing in glasses of water, untill it arriveth unto the weight of an ounce, in a shady place, will sometimes exhaust a pound of water. ❧ AND as they send much forth, so may they receive somewhat in; for, beside the common way and road of reception by the root, there may be a refection and imbibition from without, for gentle showers refresh plants, though they enter not their roots, and the good & bad *effluvium* of vegetables promote or debilitate each other. So *epithymum* & dodder, rootless and out of the ground, maintain themselves upon thyme, savory, and plants whereon they hang; & ivy, divided from the root, we have observed to live some years by the cirrous parts commonly conceived but as tenacles & hold-fasts unto it. The stalks of mint cropt from the root, stript from the leaves & set in glasses with the root end upward & out of the water, we have observed to send forth sprouts & leaves without the aid of roots, & *scordium* to grow in like manner, the leaves set downward in water. To omit severall sea-plants which grow on single roots from stones, although in very many there are side-shoots and fibres beside the fastening root. ❧ BY this open position they were fairly exposed unto the rays of Moon and Sun, so considerable in the growth of vegetables. For though poplars, willows, & severall trees be made to grow about the brinks of Acheron & dark habitations of the dead, though some plants are content to grow in obscure wells, wherein also old elme-pumps afford sometimes long bushy sprouts not observable in any above ground, & large fields of vegetables are able to maintain their verdure at the bottome & shady part of the sea, yet the greatest number are not content without the actual rays of the Sun, but bend, incline, and follow them, as large lists of solisequious or sun-following plants; & some observe the method of its motion in their own growth and conversion, twining towards the west by the south, as briony, hops, woodbine, and severall kinds of bindweed, which we shall more admire when any can tell us they observe another motion, and twist by the north at the Antipodes. The same plants rooted against an erect north wall full of holes will find a way through them to look upon the sun; and in tender plants from mustard-seed, sown in the winter and in a pot of earth placed inwardly against a south window, the tender stalks of two leaves arose not erect but bending towards the window, nor looking much higher than the meridian Sun; and if the pot were turned they would work themselves into their former declinations, making their conversion by the east. That the leaves of the olive and some other trees solstitially turn, & precisely tell us when the Sun is entered Cancer, is scarce expectable in any climate, and Theophrastus warily observes it. Yet somewhat thereof is observable in our own, in the leaves of willows & sallows, some weeks after the solstice. But the great convolvulous, or white-flowered bindweed, observes both motions of the Sun; while the flower twists æquinoctially from the left hand to the right according to the daily revolution, the stalk twineth ecliptically from the right to the left according to the annual conversion. Some commend the exposure of these orders unto the western gales, as the most generative and fructifying breath of Heaven. But we applaud the husbandry of Solomon, whereto agreeth the doctrine of Theophrastus: 'Arise, O North Wind, and blow, thou South, upon my garden, that the spices thereof may flow out.' For the north wind closing the pores & shutting up the *effluviums*, when the south doth after open and relax them the aromatical gums do drop, & sweet odours fly actively from them; and, if his garden had the same situation which maps and charts afford it, on the east side of Jerusalem and having the wall on the west, these were the winds unto which it was well exposed. ❦ BY this way of plantation they increased the number of their trees, which they lost in quaternios and square orders, which is a commodity insisted on by Varro, and one great intent of nature, in this position of flowers and seeds in their elegant formation of plants, and the former rules observed in natural and artificial figurations. ❦ WHETHER in this order, and one tree in some measure breaking the cold and pinching gusts of wind from the other, trees will not better maintain their inward circles and either escape or moderate their eccentricities, may also be considered. For the circles in trees are naturally concentricall, parallel unto the bark and unto each other, till frost and piercing winds contract and close them on the weather side, the opposite semi-circle widely enlarging and at a comely distance, which hindereth ofttimes the beauty and roundness of trees and makes the timber less serviceable, whilst the ascending juyce, not readily passing, settles in knots and inequalities; and therefore it is no new course of agriculture to observe the native position of trees according to north and south in their transplantations. ❧ THE same is also observable underground in the circinations and spherical rounds of onions, wherein the circles of the orbs are ofttimes larger, and the meridional lines stand wider upon one side than the other; and, where the largeness will make up the number of planetical orbs, that of Luna & the lower planets exceed the dimensions of Saturn and the higher; whether the like be not verified in the circles of the large roots of briony and mandrakes, or why in the knots of deal or firre the circles are often eccentrical, although not in a plane, but vertical and right position, deserves a further enquiry. ❧ WHETHER there be not some irregularity of roundness in most plants according to their position; whether some small compression of pores be not perceptible in parts which stand against the current of waters, as in reeds, bullrushes, & other vegetables, toward the streaming quarter may also be observed; and therefore such as are long and weak are commonly contrived into a roundness of figure, whereby the water presseth less and slippeth more smoothly from them: and even in flags of flat-figured leaves the greater part obvert their sharper sides unto the current in ditches. ❧ BUT whether plants which float upon the surface of the water be for the most part of cooling qualities, those which shoot above it of heating virtues, and why. Whether *sargasso* for many miles floating upon the western ocean, or sea-lettuce and *phasganium* at the bottome of our seas, make good the like qualities. Why fenny waters afford the hottest and sweetest plants, as *calamus*, *cyperus*, and crowfoot, and mud cast out of ditches most naturally produces arse-smart. Why plants so greedy of water so little regard oil. Why, since many seeds contain much oil within them, they endure it not well without, either in their growth or production. Why, since seeds shoot commonly underground and out of the air, those which are let fall in shallow glasses, upon the surface of the water, will sooner sprout than those at the bottome; and, if the water be covered with oil, those at the bottome will hardly sprout at all—we have not room to conjecture. ❧ WHETHER ivy would not less offend the trees in this clean ordination, and well-kept paths, might perhaps deserve the question. But this were a query onely unto some habitations, and little concerning Cyrus or the Babylonian territory, wherein by no industry Harpalus could make ivy grow. And Alexander hardly found it about those parts, to imitate the pomp of Bacchus. And, though in these northern regions we are too much acquainted with one ivy, we know too little of another, whereby we apprehend not the expressions of antiquity, the splenetick medicine of Galen, and the emphasis of the poet, in the beauty of the white ivy. ❧ THE like concerning the growth of misletoe, which dependeth not onely of the species or kind of tree, but much also of the soil; and therefore is common in some places, not readily found in others; frequent in France, not so common in Spain, and scarce at all in the territory of Ferrara; nor easily to be found where it is most required upon oaks, less on trees continually verdant. Although in some places the olive escapes it not, requiting its detriment in the delightfull view of its red berries; as Clusius observed in Spain, & Bellonius about Hierusalem. But this parasitical plant suffers nothing to grow upon it by any way of art, nor could we ever make it grow where nature had not planted it; as we have in vain attempted by inoculation and incision upon its native or foreign stock: and though there seem nothing improbable in the seed, it hath not succeeded by sation in any manner of ground; wherein we had no reason to despair, since we read of vegetable horns, and how rams-horns will root about Goa. ❧ BUT besides these rural commodities, it cannot be meanly delectable in the variety of figures which these orders opened & closed do make: whilst every inclosure makes a *rhombus*, the figures obliquely taken a *rhomboides*; the intervalls bounded with parallel lines, and each intersection built upon a square, affording two triangles or pyramids vertically conjoyned, which in the strict quincuncial order do oppositely make acute and blunt angles. ❧ AND though therein we meet not with right angles, yet every *rhombus* containing four angles equal unto two right, it virtually contains two right in every one. Nor is this strange unto such as observe the natural lines of trees, & parts disposed in them. For neither in the root doth nature affect this angle, which shooting downward for the stability of the plant doth best effect the same by figures of inclination; nor in the branches and stalky leaves, which grow most at acute angles, as declining from their head the root, and diminishing their angles with their altitude: verified also in lesser plants, whereby they better support themselves, and bear not so heavily upon the stalk; so that while near the root they often make an angle of seventy parts, the sprouts near the top will often come short of thirty. Even in the nerves and master-veins of the leaves the acute angle ruleth; the obtuse is but seldom found, and in the backward part of the leaf, reflecting & arching about the stalk. But why ofttimes one side of the leaf is unequal unto the other, as in hazell and oaks; why on either side the master-vein the lesser and derivative channels are not directly opposite, nor at equal angles respectively unto the adverse side, but those of one part do often exceed the other, as the walnut and many more; deserves another enquiry. ❧ NOW if for this order we affect coniferous and tapering trees, particularly the cypress, which grows in a conicall figure, we have found a tree not onely of great ornament, but in its essentials of affinity unto this order; a solid *rhombus* being made by the conversion of two æquicrural cones, as Archimedes hath defined. And these were the common trees about Babylon & the east, whereof the ark was made; and Alexander found no trees so accommodable to build his navy. And this we rather think to be the tree mentioned in the *Canticles*, which stricter botanology will hardly allow to be camphire. ❧ AND if delight or ornamental view invite a comely disposure by circular amputations, as is elegantly performed in hawthorns, then will they answer the figures made by the conversion of *rhombus*, which maketh two concentrical circles; the greater circumference being made by the lesser angles, the lesser by the greater. ❧ THE cylindrical figure of trees is virtually contained and latent in this order: a cylinder, or long round, being made by the conversion or turning of a parallelogram, & most handsomely by a long square, which makes an equal, strong and lasting figure in trees, agreeable unto the body and motive parts of animals, the greatest number of plants, and almost all roots, though their stalks be angular, & of many corners, which seem not to follow the figure of their seeds; since many angular seeds send forth round stalks, & spherical seeds arise from angular spindles, & many rather conform unto their roots, as the round stalks of bulbous roots, and in tuberous roots stemms of like figure. But why, since the largest number of plants maintain a circular figure, there are so few with teretous or long-round leaves; why coniferous trees are tenui-folious or narrow-leafed; why plants of few or no joynts have commonly round stalks; why the greatest number of hollow stalks are round stalks; or why in this variety of angular stalks the quadrangular most exceedeth; were too long a speculation. Meanwhile obvious experience may find, that in plants of divided leaves above, nature often beginneth circularly in the two first leaves below; while in the singular plant of ivy she exerciseth a contrary geometry, and beginning with angular leaves below, rounds them in the upper branches. ❧ NOR can the rows in this order want delight, as carrying an aspect answerable unto the *dipteros hypæthra*, or double order of columns open above; the opposite ranks of trees standing like pillars in the *cavedia* of the courts of famous buildings, & porticoes of the *templa subdialia* of old; somewhat imitating the *peristylia* or cloister-buildings, & the *exedræ* of the ancients, wherein men discoursed, walked & exercised. For that they derived the rule of columns from trees, especially in their proportional diminutions, is illustrated by Vitruvius from the shafts of firre and pine. And though the inter-arboration do imitate the *aræstylos*, or thin order, not strictly answering the proportion of intercolumniations; yet in many trees they will not exceed the intermission of the columns in the court of the Tabernacle, which being an hundred cubits long, & made up by twenty pillars, will afford no less than intervalls of five cubits. ❧ BESIDE, in this kind of aspect the sight being not diffused, but circumscribed between long parallels & the ἐπισκιασμός & adumbration from the branches, it frameth a penthouse over the eye, and maketh a quiet vision: and therefore in diffused and open aspects men hollow their hand above their eye, and make an artificial brow, whereby they direct the dispersed rays of sight, and by this shade preserve a moderate light in the chamber of the eye, keeping the pupilla plump and fair, and not contracted or shrunk as in light and vagrant vision. ❧ AND therefore Providence hath arched and paved the great house of the world with colours of mediocrity, that is, blue and green, above and below the sight, moderately terminating the *acies* of the eye. For most plants, though green above ground, maintain their original white below it, according to the candour of their seminal pulp, and the rudimentall leaves do first appear in that colour; observable in seeds sprouting in water upon their first foliation. Green seeming to be the first supervenient or above-ground complexion of vegetables, separable in many upon ligature or inhumation, as succory, endive, artichoaks; and which is also lost upon fading in the autumn. ❧ AND this is also agreeable unto water itself, the alimental vehicle of plants, which first altereth into this colour. And, containing many vegetable seminalities, revealeth their seeds by greenness; and therefore soonest expected in rain or standing water, not easily found in distilled or water strongly boiled, wherein the seeds are extinguished by fire and decoction, & therefore last long & pure without such alteration, affording neither uliginous coats, gnat-worms, *acari*, hair-worms, like crude and common water—and therefore that is most fit for wholesome beverage, and, with malt, makes ale & beer without boiling. What large water-drinkers some plants are, the canary-tree & birches in some northern countries, drenching the fields about them, do sufficiently demonstrate. How water itself is able to maintain the growth of vegetables, and without extinction of their generative or medicall virtues, besides the experiment of Helmont's tree, we have found in some which have lived six years in glasses. The seeds of scurvy-grass growing in water-pots have been fruitfull in the land; and *assarum* after a year's space, and once casting its leaves in water, in the second leaves hath handsomely performed its vomiting operation. ❧ NOR are onely dark and green colours but shades and shadows contrived through the great volume of nature, and trees ordained not onely to protect and shadow others but by their shades and shadowing parts to preserve & cherish themselves; the whole radiation or branches shadowing the stock and the root—the leaves, the branches, and fruit, too much exposed to the winds and scorching sun. The calicular leaves inclose the tender flowers, and the flowers themselves lie wrapt about their seeds, in their rudiment and first formations, which being advanced, the flowers fall away; and are therefore contrived in variety of figures, best satisfying the intention; handsomely observable in hooded and gaping flowers, &

the butterfly blooms of leguminous plants, the lower leaf closely involving the rudimental cod, and the alary or wingy divisions embracing or hanging over it. ❧ BUT seeds themselves do lie in perpetual shades, either under the leaf or shut up in coverings; and such as lie barest have their husks, skins, and pulps about them, wherein the neb and generative particle lieth moist and secured from the injury of air and Sun. Darkness and light hold interchangeable dominions, and alternately rule the seminal state of things. Light unto Pluto is darkness unto Jupiter. Legions of seminal ideas lie in their second chaos and Orcus of Hippocrates; till, putting on the habits of their forms, they show themselves upon the stage of the world & open dominion of Jove. They that held the stars of Heaven were but rays & flashing glimpses of the empyreal light through holes and perforations of the upper Heaven, took off the natural shadows of Stars; while according to better discovery the poor inhabitants of the Moon have but a polary life, and must pass half their days in the shadow of that luminary. ❧ LIGHT that makes things seen makes some things invisible; were it not for darkness & the shadow of the earth, the noblest part of the creation had remained unseen, and the stars in Heaven as invisible as on the fourth day, when they were created above the horizon with the Sun, or there was not an eye to behold them. The greatest mystery of religion is expressed by adumbration, and in the noblest parts of Jewish types we find the cherubim shadowing the mercy-seat. Life itself is but the shadow of death, and souls departed but the shadows of the living. All things fall under this name. The sun itself is but the dark *simulacrum*, and light but the shadow of God. ❧ LASTLY, it is no wonder that this quincuncial order was first and is still affected as gratefull unto the eye. For all things are seen quincuncially; for at the eye the pyramidall rays from the object receive a decussation, and so strike a second base upon the retina, or hinder coat, the proper organ of vision, wherein the pictures from objects are represented answerable to the paper or wall in the dark chamber, after the decussation of the rays at the hole of the horny-coat, and their refraction upon the crystalline humour, answering the *foramen* of the window, and the convex or burning-glasses which refract the rays that enter it. And, if ancient anatomy would hold, a like disposure there was of the optick, or visual, nerves in the brain, wherein antiquity conceived a concurrence by decussation. And this was not onely observable in the laws of direct vision but in some part also verified in the reflected rays of sight. For, making the angle of incidence equal to that of reflection, the visual ray returneth quincuncially & after the form of a V; and, the line of reflection being continued unto the place of vision, there ariseth a semi-decussation, which makes the object seen in a perpendicular unto itself, and as far below the reflectent as it is from it above, observable in the Sun and Moon beheld in water. ❧ AND this is also the law of reflection in moved bodies and sounds, which, though not made by decussation, observe the rule of equality between incidence and reflection; whereby whispering places are framed by elliptical arches laid sidewise; where the voice, being delivered at the focus of one extremity, observing an equality unto the angle of incidence, it will reflect unto the focus of the other end, and so escape the ears of the standers in the middle. ❧ A LIKE rule is observed in the reflection of the vocal and sonorus line in echoes, which cannot therefore be heard in all stations. But happening in woody plantations, by waters, and able to return some words, if reached by a pleasant and well-dividing voice, there may be heard the softest notes in nature. ❧ AND this is not onely verified in the way of sense but in animal and intellectual receptions; things entering upon the intellect by a pyramid from without, & thence into the memory by another from within, the common decussation being in the understanding as is delivered by Bovillus. Whether the intellectual and phantasticall lines be not thus rightly disposed, but magnified, diminished, distorted, and ill placed in the mathematicks of some brains, whereby they have irregular apprehensions of things, perverted notions, conceptions, and incurable hallucinations—were no unpleasant speculation. ❧ AND, if Ægyptian philosophy may obtain, the scale of influences was thus disposed, and the genial spirits of both worlds do trace their way in ascending and descending pyramids, mystically apprehended in the letter X and the open bill and straddling legs of a stork, which was imitated by that character. ❧ OF this figure Plato made choice to illustrate the motion of the soul both of the world and man; while he delivered that God divided the whole conjunction length-wise, according to the figure of a Greek X, and then turning it about reflected it into a circle: by the circle implying the uniform motion of the first orb, & by the right lines, the planetical and various motions within it. And this also with application unto the soul of man, which hath a double aspect, one right, whereby it beholdeth the body and objects without; another circular and reciprocal, whereby it beholdeth itself. The circle declaring the motion of the indivisible soul, simple, according to the divinity of its nature, and returning into itself; the right lines respecting the motion pertaining unto sense and vegetation; and the central decussation, the wondrous connexion of the severall faculties conjoyntly in one substance. And so he conjoyned the unity and duality of the soul, and made out the three substances so much considered by him; that is, the indivisible or divine, the divisible or corporeal, and that third was the *systasis* or harmony of those two in the mystical decussation. ❦ AND if that were clearly made out which Justin Martyr took for granted, this figure hath had the honour to characterize & notifie our Blessed Saviour, as he delivereth in that borrowed expression from Plato: *decussavit eum in universo:* the hint whereof he would have Plato derive from the figure of the brazen serpent, and to have mistaken the letter X for T; whereas it is not improbable he learned these & other mystical expressions in his learned observations of Ægypt, where he might obviously behold the Mercurial characters, the handed crosses, & other mysteries not thoroughly understood in the sacred letter X, which being derivative from the stork, one of the ten sacred animals, might be originally Ægyptian, & brought into Greece by Cadmus of that country.

V.

TO ENLARGE THIS CONTEMPLATION UNTO ALL the mysteries and secrets accommodable unto this number were inexcusable Pythagorism, yet cannot omit the ancient conceit of five surnamed the number of justice; as justly dividing between the digits, and hanging in the centre of nine, described by square numeration, which angularly divided will make the decussated number; and so agreeable unto the quincuncial ordination and rows divided by equality and just decorum in the whole complantation; and might be the original of that common game among us, wherein the fifth place is sovereign, & carrieth the chief intention—the ancients wisely instructing youth, even in their recreations, unto vertue, that is, early to drive at the middle point and central seat of justice. ❧ NOR can we omit how agreeable unto this number an handsome division is made in trees and plants, since Plutarch and the ancients have named it the divisive number, justly dividing the entities of the world, many remarkable things in it, and also comprehending the general division of vegetables. And he that considers how most blossomes of trees and greatest number of flowers consist of five leaves, and therein doth rest the settled rule of nature—so that in those which exceed there is often found, or easily made, a variety—may readily discover how nature rests in this number, which is indeed the first rest and pause of numeration in the fingers, the natural organs thereof. Nor in the division of the feet of perfect animals doth nature exceed this account. And even in the joynts of feet, which in birds are most multiplied, it surpasseth not this number; so progressionally making them out in many, that from five in the fore-claw she descendeth unto two in the hindmost; and so in four feet makes up the number of joynts in the five fingers or toes of man. ❧ NOT to omit the quintuple section of a cone, of handsome practice in ornamental garden-plots, and in some way discoverable in so many works of nature, in the leaves, fruits, and seeds of vegetables, and scales of some fishes; so much considerable in glasses, and the optick doctrine, wherein the learned may consider the crystalline humour of the eye in the cuttle-fish and loligo. ❧ HE that forgets not how antiquity named this the conjugal or wedding number, and made it the embleme of the most remarkable conjunction, will conceive it duly appliable unto this handsome œconomy & vegetable combination; and may hence apprehend the allegoricall sense of that obscure expression of Hesoid, and afford no improbable reason why Plato admitted his nuptial guests by fives in the kindred of the married couple. ❦ AND though a sharper mystery might be implied in the number of the five wise and foolish virgins which were to meet the bridegroom; yet was the same agreeable unto the conjugal number, which ancient numerists made out by two and three, the first parity and imparity, the active and passive digits, the material and formal principles in generative societies; and not discordant even from the customs of the Romans, who admitted but five torches in their nuptial solemnities. Whether there were any mystery or not implied, the most generative animals were created on this day, and had accordingly the largest benediction. And under a quintuple consideration wanton antiquity considered the circumstances of generation, while by this number of five they naturally divided the nectar of the fifth planet. ❦ THE same number in the Hebrew mysteries and cabalisticall accounts was the character of generation, declared by the letter *He*, the fifth in their alphabet; according to that cabalisticall dogma. If Abram had not had this letter added unto his name, he had remained fruitless, & without the power of generation: not onely because hereby the number of his name attained two hundred fourty eight, the number of the affirmative precepts; but because as in created natures there is a male and female, so in divine & intelligent productions the mother of life & fountain of souls in cabalisticall technology is called *Binah*, whose seal & character was *He*. So that being sterile before, he received the power of generation from that measure and mansion in the archetype, & was made conformable unto *Binah*. And upon such involved considerations the ten of Sarai was exchanged into five. If any shall look upon this as a stable number, and fitly appropriable unto trees, as bodies of rest and station, he hath herein a great foundation in nature, who, observing much variety in legs and motive organs of animals, as two, four, six, eight, twelve, fourteen, and more, hath passed over five and ten, and assigned them unto none, or very few, as the *Phalangium monstrosom Brasilianum (Clusii, et Jac. de Laet. Cur. Poster. Americæ Descript.)*, if perfectly described. And for the stability of this number, he shall not want the sphericity of its nature, which multiplied in itself will return into its own denomination, & bring up the rear of the account. Which is also one of the numbers that makes up the mysticall name of God, which consisting of letters denoting all the sphericall numbers, ten, five, and six, emphatically sets forth the notion of Trismegistus, and that intelligible sphear which is the nature of God. ❧ MANY expressions by this number occur in Holy Scripture, perhaps unjustly laden with mysticall expositions, & little concerning our order. That the Israelites were forbidden to eat the fruit of their new-planted trees before the fifth year, was very agreeable unto the natural rules of husbandry; fruits being unwholesome and lash before the fourth or fifth year. In the second day, or feminine part of five, there was added no approbation: for in the third, or masculine day, the same is twice repeated; & a double benediction inclosed both creations, whereof the one in some part was but an accomplishment of the other. That the trespasser was to pay a fifth part above the head or principal, makes no secret in this number, & implied no more than one part above the principal; which being considered in four parts, the additional forfeit must bear the name of a fifth. The five golden mice had plainly their determination from the number of the princes. That five should put to flight an hundred might have nothing mystically implied, considering a rank of souldiers could scarce consist of a lesser number. Saint Paul had rather speak five words in a known than ten thousand in an unknown tongue; that is, as little as could well be spoken; a simple proposition consisting of three words, & a complexed one not ordinarily short of five. ❧ MORE considerable things there are in this mysticall account, which we must not insist on. And therefore why the radicall letters in the Pentateuch should equal the number of the souldiery of the tribes; why our Saviour in the wilderness fed five thousand persons with five barley loaves, and again, but four thousand with no less than seven of wheat; why Joseph designed five changes of rayment unto Benjamin, & David took just five pebbles out of the brook against the pagan champion; we leave it unto arithmeticall divinity, & theological explanation. ❧ YET, if any delight in new problems or think it worth the enquiry, whether the critical physician hath rightly hit the nominal notation of *quinque*? Why the ancients mixed five or three but not four parts of water unto their wine; and Hippocrates observed a fifth proportion in the mixture of water with milk, as in dysentries and bloudy fluxes. Under what abstruse foundation astrologers do figure the good or bad fate from our children, in good fortune, or the fifth house of their celestial schemes. Whether the Ægyptians described a star by a figure of five points, with reference unto the five capital aspects, whereby they transmit their influences or abstruser considerations. Why the cabalisticall doctours, who conceive the whole Sephiroth, or divine emanations, to have guided the ten-stringed harp of David, whereby he pacified the evil spirit of Saul, in strict numeration do begin with the *perihypate meson*, or *si fa ut*, and so place the *tiphereth*, answering *c sol fa ut*, upon the fifth string, or whether this number be oftener applied unto bad things and ends than good in Holy Scripture, and why—he may meet with abstrusities of no ready resolution. ❧ IF any shall question the rationality of that magick in the cure of the blind man by Serapis commanded to place five fingers on his altar and then his hand on his eyes—why, since the whole comedy is primarily and naturally comprised in four parts, & antiquity permitted not so many persons to speak in one scene, yet would not comprehend the same in more or less than five acts. Why amongst sea-stars nature chiefly delighteth in five points. And since there are found some of no fewer than twelve, and some of seven and nine, there are few or none discovered of six or eight. If any shall enquire why the flowers of rue properly consist of four leaves, the first and third flower have five. Why, since many flowers have one leaf or none, as Scaliger will have it, divers three, and the greatest number consist of five divided from their bottoms, there are yet so few of two; or why nature, generally beginning or setting out with two opposite leaves at the root, doth so seldom conclude with that order & number at the flower, he shall not pass his hours in vulgar speculations. ❧ IF any shall further querie why magneticall philosophy excludeth decussations, and needles transversely placed do naturally distract their verticities; why geomancers do imitate the quintuple figure in their mother-characters of acquisition and amission, &c., somewhat answering the figures in the lady, or speckled, beetle; with what equity chiromanticall conjecturers decry these decussations in the lines and mounts of the hand; what that decussated figure intendeth in the medall of Alexander the Great; why the goddesses sit commonly cross-legged in ancient drafts, since Juno is described in the same as a veneficiall posture to hinder the birth of Hercules: if any shall doubt why at the amphidromicall feasts, on the fifth day after the child was born, presents were sent from friends of polypuses and cuttle-fishes; why five must be onely left in that symbolicall mutiny among the men of Cadmus; why Proteus in Homer, the symbol of the first matter, before he settled himself in the midst of his sea-monsters, doth place them out by fives; why the fifth year's ox was acceptible sacrifice unto Jupiter; or why the noble Antoninus in some sense doth call the soul itself a *rhombus*: he shall not fall on trite or trivial disquisitions. And these we invent & propose unto acuter enquirers, nauseating crambe-verities & questions over-queried. Flat & flexible truths are beat out by every hammer; but Vulcan and his whole forge sweat to work out Achilles his armour. A large field is yet left unto sharper discerners to enlarge upon this order, to search out the *quaternios* & figured drafts of this nature, & (moderating the study of names & mere nomenclature of plants), to erect generalities, disclose unobserved proprieties, not only in the vegetable shop, but the whole volume of nature, affording delightful truths, confirmable by sense and ocular observation, which seems to me the surest path to trace the labyrinth of truth. For though discursive enquiry & rational conjecture may leave handsome gashes & flesh-wounds; yet without conjunction of this expect no mortal or dispatching blows unto errour. ❧ BUT the quincunx of Heaven runs low, and 'tis time to close the five ports of knowledge. We are unwilling to spin out our awaking thoughts into the phantasms of sleep, which often continueth precogitations, making cables of cobwebs, & wildernesses of handsome groves. Beside, Hippocrates hath spoke so little, and the oneirocritical masters have left such frigid interpretations from plants, that there is little encouragement to dream of Paradise itself. Nor will the sweetest delight of gardens afford much comfort in sleep, wherein the dulness of that sense shakes hands with delectable odours; & though in the bed of Cleopatra, can hardly with any delight raise up the ghost of

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a rose. ❦ NIGHT, which Pagan theology could make the daughter of Chaos, affords no advantage to the description of order; although no lower than that mass can we derive its genealogy. All things began in order, so shall they end, and so shall they begin again; according to the ordainer of order & mysticall mathematicks of the city of Heaven. ❦ THOUGH Somnus in Homer be sent to rouze up Agamemnon, I find no such effects in the drowsie approches of sleep. To keep our eyes open longer were but to act our Antipodes. The huntsmen are up in America, & they are already past their first sleep in Persia. But who can be drowsie at that hour which freed us from everlasting sleep? or have slumbring thoughts at that time when sleep itself must end, &, as some conjecture, all shall wake again?

FINIS

NOTES.

p. 8, l. 7. *Divine Philosopher.* Plato *in Timæo.*

l. 10. *In three words. Fronde tegi silvas.*

l. 20. *Controversie.* For some there is from the ambiguity of the word *Mikkedem*, whether *ab oriente*, or *à principio.*

p. 9, l. 3. *Hanging Gardens. Josephus.*

l. 20. *City of Flowers. Sushan in Sufiana. Plutarch* in the life of *Artaxerxes.*

p. 10, l. 4. *Most Elegant of the Latines.* Cicero in *Cat. major.*

l. 16. *Curtius and Porta.* Benedict. Curtius *de Hortis.* Bapt. Port. *in villa.*

p. 11, l. 4. *Sepulchral Monuments.* Of *Marius Alexander. Roma Sotteranea.*

l. 16. *Plain Cross.* Wherein the lower part is somewhat longer, as defined by *Upton, De studio militari*, and *Johannes de Bado Aureo.*

l. 17. *Cross erected.* Casal. *de Ritibus.* Bosio *nella Triofante Croce.*

p. 13, l. 22. *Abramas. Vet. Testamenti Pharus.*

p. 14, l. 1. *Statua.* Which King *Numa* set up with his Fingers so disposed, that they numerically denoted 365. *Pliny.*

p. 16, l. 19. *Founded upon Fives.* Of a structure five parts, *Fundamentum, Parietes, Aperturæ, Compartitio, Tectum*, Leo Alberti: Five Columns, *Tuscan, Dorick, Ionick, Corinthian, Compound:* Five different Intercolumniations, *Pycnostylos, Diastylos, Systylos, Aræostylos, Eustylos.* Vitruv.

p. 17, l. 20. *Canticles.* Cant. 2. 9.

p. 18, l. 17. *Minerva.* As in the contention between *Minerva* and *Arachne.*

l. 32. *Penelope.* In *Eustathius.*

p. 19, l. 14. *Battalia.* In the disposure of the Legions in the Wars of the Republick, before the division of the Legion into ten Cohorts by the Emperors. *Salmas.* in his Epistle *a Monsieur de* Peiresc, *de Re militari Romanorum.*

l. 22. *Battel of Africa.* Polybius. Appianus.

p. 20, l. 6. *Narses.* Agathias. Ammianus.

l. 9. *Græcian Cavalry.* Ælian. *Tact.*

l. 24. *The like Foundation.* Obelisks being erected upon a square base.

l. 26. *Nineveh.* Diod. Sic.

p. 21, l. 8. *Agostino.* Antonio Agostino *delle Medaglie.*

l. 31. *Single Beds.* Aristot, *Mechan.*

p. 24, l. 29. *Squamous Heads. Capitala squamata Querc. Bauhini*, whereof though he saith *perraro reperiuntur, bis tantùm invenimus*, yet we find them commonly with us, and in great numbers.

p. 25, l. 14. *Solitary Maggot.* There being a single Maggot found almost in every head.

l. 18. *Borith.* Jer. 2. 22.

p. 26, l. 20. *Upon Pollards.* Upon Pollard Oaks and Thorns.

p. 30, l. 1. *Jülus.* These and more to be found upon our Oaks, not well bescribed by any till the Edition of *Theatrum Botanicum.*

l. 12. *Cypress and Rampions. Doctissim.* Laurenburg. *Hort.*

p, 30, l. 26. *Goat-Beetle.* The long and tender green *Capricornus*, rarely found: we could never meet with but two.

p. 31, l. 13. *Swallows Eggs.* Which exceed not five.

p. 33, l. 25. *Gomesius.* Gom. de Sale.

p. 34, l. 21. *Feathery Plantation.* Elegantly conspicuous on the inside of the stripped Skins of Dive-fowl, of the Cormorant, Goshonder, Weasell, Loon, &c.

p. 35, l. 3. *Handed Crosses. Cruces ansatæ*, being held by a finger in the circle.

p. 37, l. 14. *Man-Orchis. Orchis Anthropophora*, Fabii Columnæ.

p. 38, l. 9. *Augustus.* Suet. *in vit. Aug.*

l. 18. *The Russet Neck.* To be observed in white young Lambs, which afterward vanisheth.

p. 39, l. 29. *Gnatworms.* Found often in some form of red Maggot in the standing waters of Cisterns in the Summer.

p. 42, l. 14. *Virgil. Quantum vertice ad auras Æthereas, tantum radice ad tartara tendit.*

p. 50, l. 8. *Light unto Pluto. Lux Orco, Tenebræ Jovi; Tenebræ Orco, Lux Jovi.* Hippocr. *de Diæta.*

p. 51, l. 24. *Bovillus.* Car. Bovillus *de Intellectu.*

p. 54, l. 24. *In many.* As Herns, Bitterns, and long clawed Fowls.

p. 55, l. 4. *Kindred.* Plato *de leg.* 6.

l. 17. *Character of Generation.* Archang. *dog. Cabal.*

l. 28. *Exchanged into Five. Jod* into *He.*

p. 58, l. 25. *Quincunx of Heaven. Hyades*, near the Horizon about midnight at that time.

l. 29. *Hippocrates. De Insomniis.*

l. 30. *Oneirocritical Masters.* Artemidorus *and* Apomazar.

l. 34. *Bed of Cleopatra.* Strewed with Roses.

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